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Staff Report for a City of San Leandro City Council Resolution to Approve and Adopt the Fiber Optic Master Plan

SUMMARY AND RECOMMENDATION

The City of San Leandro maintains a robust fiber optic network consisting of 21 miles of conduit and anywhere from 48 to 102 strands of fiber per section, depending on the location. In recent years, the City has utilized its fiber optic network to connect its traffic signals, provide data and network services between City facilities, for its public Wi-Fi system, and to connect the Climatec smart street light system. It is anticipated that even more uses will arise in the future. However, Staff recognizes both the need for future planning as well as a more sophisticated approach to maintaining the fiber network.

In 2017, the City contracted with Magellan Advisors to develop a fiber optic master plan to guide the future development and expansion of the City's municipal fiber network. In addition, Staff developed a Smart City Strategy to identify areas where the fiber network could be utilized to provide "smart" technology services and solutions.

Staff recommends the City Council adopt the Fiber Optic Master Plan, which contains specific recommendations for expanding, developing, and maintaining the City's municipal fiber network, and will serve as a guideline for implementing Smart City and Broadband policies and services.

BACKGROUND

The City's fiber-optic assets have grown in recent years, especially when including fiber strands available to the City via its license agreement with San Leandro Dark Fiber. At the same time, the City has begun to embark on projects that require fiber-optic communication technology. Staff recognized the need to develop a long-range vision and strategic plan to guide the funding,

implementation, policies and management of its fiber optic assets as they relate to future project needs.

In short, the plan intends to answer two questions:

1. How can San Leandro maximize the value of its fiber optic assets?
2. What is the most effective strategy for future expansion of the network?

In July 2017, the City Council approved a contract with Magellan Advisors to develop a Fiber Optic Master Plan. Magellan was selected based on its deep policy-related experience and recent successes with cities similar to San Leandro, including Concord, CA and Vallejo, CA.

This study was conducted over a period of one year from July 2017 - July 2018. The final draft of the Fiber Optic Master Plan addresses future expansion areas, Broadband planning and needs, and discusses Smart City services that could utilize the fiber network now and in the future.

Analysis

The Plan includes the following sections:

- Executive Summary
- Background
- Smart City Strategy
- Broadband Market Assessment
- City of San Leandro Needs Assessment
- Future Broadband Network Design
- Implementation Strategy
- Appendix

The **Executive Summary** provides an overview of the Master Plan, including a financial analysis for expanding the City's broadband services, both in partnership with Lit San Leandro and as a "public" offering made directly by the City. This financial pro forma is divided into two phases of constructions and is explained in detail in later chapters. The summary also provides a list of recommendations and an action plan to achieve these objectives.

The **Background** offers an overview of existing Internet connectivity services that are available on the open market today and explains the differences between them, including what makes fiber optics such an important technology in high speed broadband Internet connectivity.

The **Smart City Strategy** was developed by Staff working across all City Departments and functions. It identifies specific areas where the City can utilize its fiber optic network to deliver technology services now and in the future. These broad areas include:

- Digital Transformation, the process of creating a digital City government experience, often called "e-Government," which includes digital services and open data;
- Smart Buildings & Facilities, connecting facilities and using integrated management systems for climate control, HVAC, energy;
- Smart Streetlights, Small Cells, and preparing for the deployment of 5G;
- Intelligent Traffic Signal Systems that adapt to real-time traffic conditions, making San Leandro

streets more efficient;

- Using technology as a force multiplier for data and intelligence to improve public safety;
- Digital Inclusion, which entails connecting the unconnected and helping community members engage in the digital economy;
- Public Wi-Fi and infrastructure to drive economic development and bridge the digital divide.

The recommendations in this section can happen independently of a Broadband services expansion, which is discussed in later sections.

The **Broadband Market Assessment** provides an evaluation of the current broadband market within the City, including private sector companies, such as Comcast and AT&T, as well as Lit San Leandro. It reviews secondary research to determine the Internet services, in terms of quantity, coverage, availability, and quality that are currently available to both businesses and residents within the City. It also juxtaposes the current market with the creation of a municipal offering.

The **Needs Assessment** presents findings from primary research done through public outreach meetings, departmental interviews, and online surveys to identify gaps in the current Internet service offerings within the City. In sum, the findings show that there is demand for broadband in the business community that continues to be unmet, while the majority of the residential community remains dissatisfied with the current broadband offerings available to them. This section also presents secondary data on the “digital divide” within the City; currently 22.4% of residential households in San Leandro do not have a broadband internet subscription. The section features recommendations to address this divide by implementing Digital Inclusion strategies, which also aligns with the Smart City Strategy.

The **Future Broadband Network Design** proposes a plan to both enhance the Lit San Leandro broadband network, as well as expand additional municipal services. It breaks this construction into two potential phases and presents a thorough discussion on how broadband services could be built out incrementally by the City in the future by capitalizing on the City’s existing network and infrastructure. It includes funding recommendations including: dig once opportunities, grants, like/kind exchanges with carriers, and use of City funds. Magellan Advisors built a financial model that shows the funding required and potential payback for both Phase 1 and Phase 2. Each model would become profitable between 16-20 years, with the initial investment paid off and future profits redirected back into expanding City services.

The **Implementation Strategy** presents a set of recommendations, each described in detail, to build the City’s Broadband network. The recommendations are:

1. Develop Fiber-Friendly Public Policies
2. Enhance Data Center and Network Interconnects
3. Work with Community Anchor Institutions on meeting their broadband needs
4. Implement Smart City Strategy applications
5. Formalize an internal Broadband Initiative Program (BIP)
6. Release RFPs for Construction and Operations
7. Incorporate broadband governance strategies into the daily operations of all City departments and work with local and regional public agencies and private investors,

The recommendations include a discussion on the need for enhanced fiber management by the City,

meaning that the systems and internal processes to manage the fiber network must be improved and formalized.

In addition to the recommendation list, this section presents an Action Plan that identifies specific tasks:

- Task 1. Document and maintain an inventory of available assets
- Task 2. Implement a fiber management system
- Task 3. Develop and standardize agreements for fiber and conduit leasing
- Task 4. Develop pricing policies for fiber and conduit leasing
- Task 5. Publish rates and terms
- Task 6. Create a city enterprise fund to maintain proper budgets, cost accounting, and track revenues generated by the program
- Task 7. Develop an RFP and competitively bid for a design/build contractor for outside-plant (OSP) O&M
- Task 8. Decide on management structure
- Task 9. Develop an RFP for contractual services or a public-private partnership for marketing and managing the network and services
- Task 10. Expand fiber segments in business districts and corridors
- Task 11. Deploy and implement Smart City equipment and services that can be supported by each phase of network expansion

The **Appendix** has all of the data that was used to develop the Master Plan, including the surveys, assumptions for the financial analysis, GIS maps, and much more.

Previous Actions

- On July 17, 2017, by Resolution No. 2017-101, the City Council approved and authorized the City Manager to execute a Consulting Services Agreement with Magellan Advisors for an amount not to exceed \$60,000.00 to develop a Fiber Optic Master Plan.
- On June 11, 2018, during a Work Session, City Council was presented a draft of the Fiber Optic Master Plan and provided input and guidance on the final version.

Summary of Public Outreach Efforts

- On February 13, 2018 the City and Magellan Advisors hosted a Residential Community Broadband Workshop at the Marina Community Center from 6:00PM-8:00PM.
- On February 14, 2018 the City and Magellan Advisors hosted a Business Broadband Workshop at the Zero Net Energy building from 7:30AM-9:00AM. On February 14, 2018 the City and Magellan Advisors hosted a Residential Community Broadband Workshop at the Main Library from 6:00PM-8:00PM.
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- On February 15, 2018 the City and Magellan Advisors hosted an Anchor Institution Community Workshop at the Zero Net Energy building from 10:00AM-12:00PM that was attended by representatives from regional agencies, such as Alameda County, BART, and AC Transit, along with neighboring cities, including Oakland, Alameda, Hayward, and Berkeley.
- Throughout the spring of 2018, the City and Magellan Advisors conducted two online surveys,

one for San Leandro businesses and one for San Leandro residents.

Fiscal Impacts

There are no immediate fiscal impacts associated with adopting the Fiber Optic Master Plan.

ATTACHMENT(S)

Attachment to Staff Report

- San Leandro Fiber Optic Master Plan Final Draft

Attachments to Related Legislative Files

- Resolution Approving and Adopting the Fiber Optic Master Plan

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